



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/500,393	06/28/2004	Yukinori Sasaki	MAT-8559US	4460

23122 7590 01/13/2006

RATNERPRESTIA

P O BOX 980

VALLEY FORGE, PA 19482-0980

EXAMINER

ADDISON, KAREN B

ART UNIT

PAPER NUMBER

2834

DATE MAILED: 01/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/500,393

Applicant(s)

SASAKI, YUKINORI

Examiner

Karen B. Addison

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1,3,9,14 are rejected under 35 U.S.C. 102(b) as being anticipated by Suzuki(JP62-81807).

Suzuk discloses a piezoelectric plate (7) in fig.2 (a-e) whose polarization points in a direction of a thickness, having a first face and a second face; a first electrode (6) for covering the first face; a second electrode (8) for covering the second face; a first dielectric film (2) for covering the first electrode; and a second dielectric film (9) for covering the second electrode, wherein the piezoelectric plate (7) employs thickness longitudinal vibration as principal vibration, wherein the first dielectric film(2) and the second dielectric film(9) have substantially the same thickness and area each other fig.2).Suzuki also disclose at least one of the first dielectric film and the second dielectric film made of silicon oxide. Suzuki also discloses, the method of adjusting the adjusting a resonance frequency of the piezoelectric vibrator by changing at least one the first dielectric film(2) and the second dielectric film(9), wherein the piezoelectric plate(7) employs a longitudinal vibration thickness as the principal vibration, wherein the first dielectric film and the second dielectric film have substantially the same thickness and area.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2,4-8,10-13 rejected under 35 U.S.C. 103(a) as being unpatentable over Shibata (U.S.6556103).

Suzuki substantially discloses the claim invention as seen above. However, Suzuki does not show, the piezoelectric plate is made of aluminum nitride, at least one of the first dielectric film and the second dielectric film is formed of an laminated layer of silicon oxide and silicon nitride. Wherein a ratio of a sum of a thickness of the first dielectric film and the second dielectric film to a thickness of the piezoelectric plate ranges not less than 0.7 and not more than 2.0. Suzuki also teaches, that the principal vibration is a fundamental mode of the thickness longitudinal vibration and the principal vibration of the piezoelectric plate is a 2nd overtone mode of the thickness longitudinal vibration. Wherein, the piezoelectric filter is a ladder type filter formed by combining at least two of the piezoelectric vibrators, wherein the first electrode is divided into an electrode for inputting and an electrode for outputting, and the second electrode is used as an electrode for grounding.

Art Unit: 2834

Shibata teaches a piezoelectric resonator fig.4-28 having a piezoelectric plate (18) made of aluminum nitride (col.5 line54-62), at least one of the first dielectric film (14) and the second dielectric film (14) is formed of a laminated layer of silicon oxide and silicon nitride. Wherein, a ratio of a sum of the thickness of the first dielectric film and the second dielectric film to a thickness of the piezoelectric plate ranges not less than 0.7 and not more than 2.0. Suzuki also teaches, that the principal vibration is a fundamental mode of the thickness longitudinal vibration and the principal vibration of the piezoelectric plate is a 2nd overtone mode of the thickness longitudinal vibration (col.1.-15). Wherein, the piezoelectric filter is a ladder type filter (fig.13) made by combining at least two of the piezoelectric vibrators (10a, 10b), Shibata also teaches in (fig.25) a first electrodes(216) divided into an electrode for inputting and an electrode for outputting(216) and the second electrode (216) is used as an electrode for grounding. Therefore, it would have been obvious to one having ordinary skill in the art at the invention was made to modify the piezoelectric vibrator with the teaching of Shibata for the purpose of preventing spurious vibrations from the main vibrations.

Conclusion

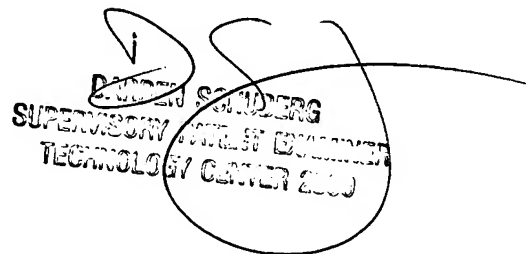
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karen B. Addison whose telephone number is 571-272-2017. The examiner can normally be reached on 8:00 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on 571-272-2044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2834

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KBA
1/9/04

A handwritten signature, possibly "D. SANDERS", is written over a circular stamp. The stamp contains the text "SUPERVISORY PATENT EXAMINER" and "TECHNOLOGY CENTER 2800".